

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
MIDLAND/ODESSA DIVISION**

TOPWIRE LLC,

Plaintiff,

V.

APPLE, INC.,

Defendant.

[illegible]

Case No. 7:25-cv-551

Jury Trial Demanded

PLAINTIFF'S ORIGINAL COMPLAINT

Plaintiff TopWire LLC (“TopWire”) files this Original Complaint against Defendant Apple, Inc. (“Apple” or “Defendant”) for patent infringement under 35 U.S.C. § 271. Plaintiff alleges, based on its own personal knowledge with respect to its own actions and based on information and belief with respect to all others’ actions, as follows:

THE PARTIES

1. Plaintiff TopWire LLC (“TopWire”) is a Texas limited liability company that holds all rights, title, and interests in United States Patent No. 9,859,202 (the “Asserted Patent”). TopWire has a mailing address and a registered office address at 5900 Balcones Drive Suite 100 Austin, Texas 78731.

2. Defendant Apple is a corporation organized and existing under the laws of the State of California, with its principal place of business at One Apple Park Way, Cupertino, CA 95014. Apple may be served with process through its registered agent, CT Corporation System, at 330 North Brand Boulevard, Suite 700, Glendale, California.

JURISDICTION & VENUE

3. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a) because the action brought by TopWire against Apple arises under the patent laws of the United States, 35 U.S.C. §1 *et seq.*

4. This Court has personal jurisdiction over Apple at least because Apple conducts business in this District and throughout the state of Texas.

5. This Court also has personal jurisdiction over Apple because Apple has committed acts of patent infringement in this District and throughout Texas, including selling, and offering for sale, products and services that infringe TopWire's Asserted Patent.

6. This Court also has personal jurisdiction over Apple because Apple has placed infringing products and services into the stream of commerce, with the expectation they will be purchased and used by customers in Texas and in this District, such that customers in Texas and in this District have purchased and used, and continue to purchase and use, Apple's infringing products and services, which has allowed Apple to derive substantial benefits from infringing acts in Texas and in this District.

7. Venue is proper in this District against Apple pursuant to 28 U.S.C. §§ 1391 and 1400(b).

8. Venue is proper in this District against Defendant Apple under 28 U.S.C. § 1391(c)(3) because Apple maintains many regular and established places of business within the Western District of Texas including: (1) its two Austin campuses located at 12545 Riata Vista Circle, Austin, Texas 78727 and 6900 W Parmer Lane, Austin, Texas 78729; (2) a technical and engineering center at 320 S. Capital of Texas Hwy, West Lake Hills, Texas 78746; and (3) several retail stores, including ones at located at (a) 3121 Palm Way, Austin, Texas 78758; (b) 2901 S. Capital of Texas Highway, Austin, Texas 78746; (c) 15900 La Cantera Parkway, San Antonio,

Texas 78256; (d) 7400 San Pedro Avenue, San Antonio, Texas 78216; and (e) 8401 Gateway Boulevard West, El Paso, Texas 79925.

9. Apple has operated in Austin, Texas since 1992. Since then, Apple has steadily grown its presence in Austin. On information and belief, Apple employees in Austin have worked on the iPhone X series and all other subsequent iPhone series (collectively, “the Accused Products”). As of the filing of this lawsuit, Apple’s campus in Austin, Texas is located at and around 12545 Riata Vista Cir, Austin, TX 78727. Apple is currently renovating its Austin campus and moving some of its employees to its new multi-billion-dollar campus down the road at 6900 W Parmer Lane, Austin, Texas 78729.¹

10. On information and belief, Apple has employees that have personal knowledge of the structures (hereinafter, “the Infringing Structures” or “the Infringing Semiconductor Structures”) inside the Accused Products made, used, sold, and/or offered for sale by Apple in the United States and/or imported by Apple in the United States that infringe the Asserted Patent.

11. Apple’s website lists several jobs related to the technology covered in the Asserted Patent. For example, as of November 20, 2025, Apple lists 554 Austin-based jobs on its website and 251 of those jobs relate to the iPhone.² These jobs include positions such as CPU pre-silicon engineering program manager, SoC DFT DC engineer, and emulation integration engineer, many of which have personal knowledge of the internal hardware layout of iPhones.³ On information

¹ See KVUE, *Apple plans multimillion-dollar renovation to old Austin campus as employees move in to new space*, available at <https://www.kvue.com/article/money/economy/boomtown-2040/austin-texas-apple-campus-renovations-2024/269-72b92e91-5561-4214-9fba-b59819da0ad0> (last visited November 20, 2025).

² See Apple, *Find your perfect role*, available at <https://jobs.apple.com/en-us/search?location=austin-AST> (last visited November 20, 2025).

³ *Id.*

and belief, Apple engineers at its Austin office have personal knowledge of the Infringing Semiconductor Structures.

12. Relevant third-party witnesses, such as semiconductor device manufacturers, are also located in this District. Apple manufactures integrated circuits and other semiconductor components for Apple's iPhones at its manufacturing plant in Austin, Texas located at 12100 Apple Blvd, Austin, TX 78754.⁴ GlobalWafers manufactures advanced wafers for integrated circuits in Apple's iPhones at its manufacturing plant in Sherman, Texas located at 200W FM1417, Sherman, TX 75090.⁵ On information and belief, employees at these offices work with components that are part of Infringing Semiconductor Structures in Apple's iPhones.

13. Other relevant third-party witnesses, such as semiconductor integration providers, are also located in this District. On information and belief, Taiwan Semiconductor Manufacturing Company ("TSMC") provides Apple most of the integrated circuits it includes in its iPhones. TSMC also operates a design services center in Austin, Texas located at 11921 N Mopac Expy #340, Austin, TX 78759 that provides support for implementing TSMC integrated circuits in customer devices. On information and belief, employees at this office help Apple integrate TSMC's integrated circuits into the Infringing Semiconductor Structures in Apple's iPhones.

14. Apple works with hundreds of suppliers, many of which have operations in Texas. For example, Apple suppliers such as Analog Devices, Coherent Corporation, Flex, Infineon Technologies, Murata Manufacturing Company, Power Integrations, ON Semiconductor, Qorvo,

⁴ See Apple, *Apple increases U.S. commitment to \$600 billion, announces American Manufacturing Program*, available at <https://www.apple.com/newsroom/2025/08/apple-increases-us-commitment-to-600-billion-usd-announces-ambitious-program/> (last visited November 20, 2025).

⁵ *Id.*

Qualcomm, Skyworks Solutions, have design and/or manufacturing operations in Texas.⁶ On information and belief, employees at these offices work with components that are part of Infringing Semiconductor Structures in Apple's iPhones.

THE ASSERTED PATENT

15. On January 2, 2018, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,859,202 ("the '202 Patent"), entitled "Spacer Connector," with Dyi-Chung Hu, a resident of Taiwan at the time of filing for patent protection, listed as the sole inventor. The '202 Patent claims priority to U.S. Provisional Application No. 62/184,034, filed June 24, 2015. A copy of the '202 Patent is attached as Exhibit A. On April 27, 2025, Dyi-Chung Hu subsequently assigned all rights, titles, and interests in the '202 Patent to TopWire.

16. Dr. Dyi-Chung Hu is a leading expert in semiconductor packaging. Dr. Hu has a PhD in material science from the Massachusetts Institute of Technology ("MIT") and has experience in industry and academia. During his career, Dr. Hu has worked for IBM East Fishkill, served as a professor at the National Chao Tung University, served as a member of the Industry Research Organization in Taiwan, and helped pioneer the thin film transistor ("TFT") LCD industry in Taiwan. Additionally, Dr. Hu has served as a founding committee member of SEMCON Taiwan electronic packaging and served as the Senior Vice President of Research and Development at Unimicron. Dr. Hu is the founder of two Taiwanese LCD companies, E-Ink and HannStar, and he currently serves as the founder and CEO of SiPlus Co., a systems integration company. Dr. Hu has been invited to speak on semiconductor packaging at numerous conferences and is a named inventor on more than 100 patents.

⁶ See Apple, *Supplier List*, available at https://s203.q4cdn.com/367071867/files/doc_downloads/2024/04/Apple-Supplier-List.pdf (last visited November 20, 2025).

17. The '202 Patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

18. The '202 Patent is directed to patentable subject matter. Particularly, the '202 Patent is directed to a novel semiconductor structure for separating and electrically connecting two layered packaging substrates. In the claimed semiconductor structure, an integrated circuit can interface with the lower packaging substrate of the two layered packaging substrates. Accordingly, the claimed semiconductor structure can facilitate integrated circuit layering in electronic devices like smartphones.

19. To the extent any marking or notice was required by 35 U.S.C. § 287, TopWire has complied with the applicable marking and/or notice requirements of 35 U.S.C. § 287.

FACTUAL BACKGROUND

Semiconductor Packaging

20. In smartphones, semiconductor packaging plays a crucial role in balancing performance, size, and power efficiency. Modern phones are designed to be compact yet highly capable, which places extreme constraints on how chips are packaged and integrated. Because smartphone chips handle functions like computing, graphics, communications, and sensing, their packaging must support both high-speed data transmission and effective thermal management in a small, tightly confined space.

Apple's Use of the Patented Technology

21. Apple is one of the leading smartphone companies in the United States, with the company selling millions of iPhones each year. Some estimates peg Apple as having at a majority share of the U.S. smartphone market.⁷

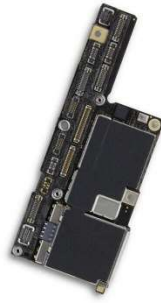
22. Every iPhone Apple has ever created includes a small logic board—sometimes also referred to as a main board or motherboard. The logic board serves as the brains for the iPhone, controlling and facilitating most of the iPhone's core functions. For example, the logic board controls the display interface, the camera, the speaker, and many other features of the iPhone.

23. Early iPhone models used a single-layered logic board—that is, the logic boards each included a single substrate and TopW chips interfacing with this substrate. As the iPhone introduced more features and functions, the number of components inside the iPhone steadily increased, creating more space constraints for the engineers designing new iPhones.

24. Apple's release of the iPhone X on November 3, 2017 introduced a new logic board design.⁸ The iPhone X employed a double-layered logic board with two substrates. The top surface of each substrate included integrated circuits, allowing the logic board to support more chips without increasing its surface area.

⁷ See Counter Point Research, *U.S. Smartphone Market Share: Quarterly*, available at <https://counterpointresearch.com/en/insights/us-smartphone-market-share> (last visited November 20, 2025).

⁸ See Apple, *The future is here: iPhone X*, available at <https://www.apple.com/newsroom/2017/09/the-future-is-here-iphone-x/> (last visited November 20, 2025).



iPhone X logic board

25. The double-layered logic board with two substrates is an Infringing Semiconductor Structure. Many iPhone models include an Infringing Semiconductor Structure.

26. The Accused Products with the Infringing Semiconductor Structures at least include the following iPhone models: the iPhone X, the iPhone XS, the iPhone XS Max, the iPhone XR, the iPhone 11, the iPhone 11 Pro, the iPhone 11 Pro Max, the iPhone SE, the iPhone 12 mini, the iPhone 12, the iPhone 12 Pro, the iPhone 12 Pro Max, the iPhone 13 mini, the iPhone 13, the iPhone 13 Pro, the iPhone 13 Pro Max, the iPhone 14, the iPhone 14 Plus, the iPhone 14 Pro, the iPhone 14 Pro, the iPhone 14 Pro Max, the iPhone 15, the iPhone 15 Plus, the iPhone 15 Pro, the iPhone 15 Pro Max, the iPhone 16, the iPhone 16 Plus, the iPhone 16 Pro, the iPhone 16 Pro Max, the iPhone 16e, the iPhone 17, the iPhone 17 Pro, the iPhone 17 Pro Max, and the iPhone Air. All of these iPhone models include a “sandwiched” logic board design.⁹

27. On information and belief, Apple continues to make, use, sell, and/or offer for sale iPhones with the Infringing Semiconductor Structures in the United States and/or import iPhones with the Infringing Semiconductor Structures into the United States.

⁹ See *How to Safely Separate iPhone Logic Boards (X to Latest Models)*, available at <https://www.youtube.com/watch?v=cPXUyO4h4TU> (last visited November 20, 2025).

28. On information and belief, future iPhone models made, used, sold, and/or offered for sale by Apple in the United States and/or imported by Apple into the United States will include Infringing Semiconductor Structures.

29. Apple does not have any ownership rights to the technology covered by '202 Patent. Additionally, Apple does not have a license to make, use, sell, or offer for sale the technology covered by the '202 Patent.

30. Apple has actual notice of the '202 Patent before the commencement of this lawsuit. On July 10, 2025, TopWire sent a letter addressed to Apple's Legal Department. The letter alleges that Apple sells mobile devices that infringe the '202 Patent. Apple responded to this letter on July 22, 2025 and requested that TopWire provide claim charts and other information to support its contention.

31. The Infringing Semiconductor Structures separate and electrically connect two layered packaging substrates. Additionally, the Infringing Semiconductor Structures can facilitate integrated circuit layering in electronic devices, including the Accused Products.

32. Apple has capitalized on the Infringing Semiconductor Structures to simultaneously reduce the size of its logic boards and increase their computational and technical capabilities, both of which provide Apple meaningful advantages over its smartphone competitors.

33. In the interest of providing detailed averments of infringement, TopWire has identified below at least one claim of the '202 Patent to demonstrate infringement. However, the selection of claims should not be considered limiting, and additional claims of the '202 Patent that are infringed by Apple will be disclosed in compliance with the Court's schedule.

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 9,859,202 (“’202 Patent”)

34. TopWire incorporates by reference the preceding paragraphs as if fully set forth herein.

35. Apple has directly infringed and continues to directly infringe the ’202 Patent under 35 U.S.C. § 271(a). The infringing acts include, but are not limited to, the manufacture, use, sale, importation, and/or offer for sale of the Accused Products with Infringing Semiconductor Structures to practice the claimed invention in the ’202 Patent. For example, claim 1 of the ’202 Patent¹⁰ recites:

A structure, comprising:

a bottom package substrate;

a top package substrate stacked on top of the bottom package substrate;

at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate, wherein the spacer connector comprises

a core substrate;

a plurality of metal pillars, each passing through the core substrate; and

a plurality of top metal pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars;

wherein a bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate,

the top package substrate has, on a bottom surface thereof, a plurality of bottom metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector,

¹⁰ Claim 1 is referenced herein for representative purposes. Plaintiff intends to identify additional asserted claims and reserves its right to provide greater detail and scope via its Infringement Contentions at the time required under this Court’s scheduling order.

the bottom package substrate has, on a top surface thereof, a plurality of top metal pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector, and

the top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate; and

a bottom chip arranged in the space between the bottom package substrate and the top package substrate, wherein

the bottom chip is mounted to the top surface of the bottom package substrate, and the at least one spacer connector comprises two spacer connectors arranged on opposite sides of the bottom chip.

The Infringing Semiconductor Structures meet the recited elements of the structure in Claim 1.

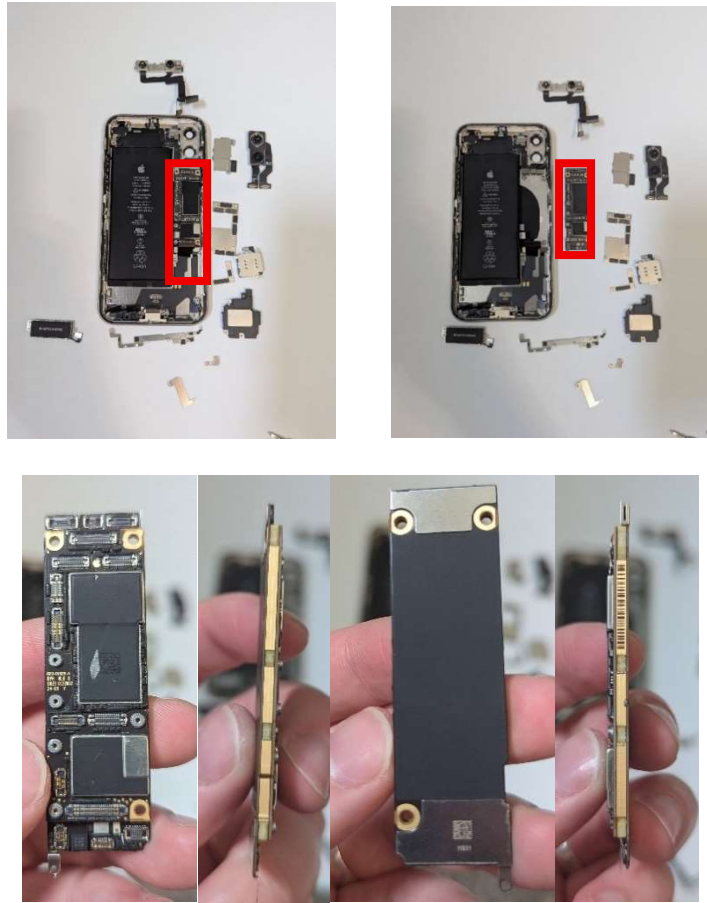
36. For the purposes of showing infringement, the iPhone 11 is selected as a representative Accused Product with an Infringing Semiconductor Structure. However, all iPhone models released since the iPhone X series share a similar structure that infringes in the same way.



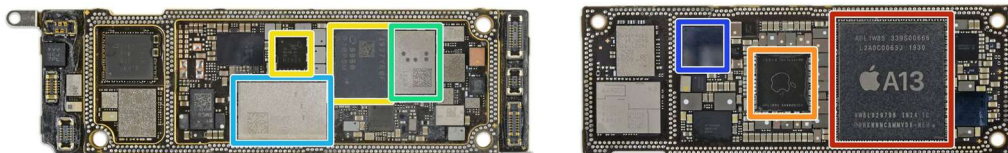
37. Opening the iPhone 11 reveals the internal components of the phone.



38. Removing the shielding and other components exposes the logic board.



39. The logic board includes several chips, including an APL1W85 (Apple's A13 Bionic system-on-chip ("SoC") layered over SK Hynix's LPDDR4X RAM) (red), an Apple APL1092 343S00354 PMIC (orange), an Intel 9960 P10PSM modem / a P10 406 transceiver (yellow), an Apple I7J9, Apple/Murata 339S00647 WiFi/Bluetooth SoC (light blue), and a Cirrus Logic 338S00509 audio codec (dark blue).¹¹



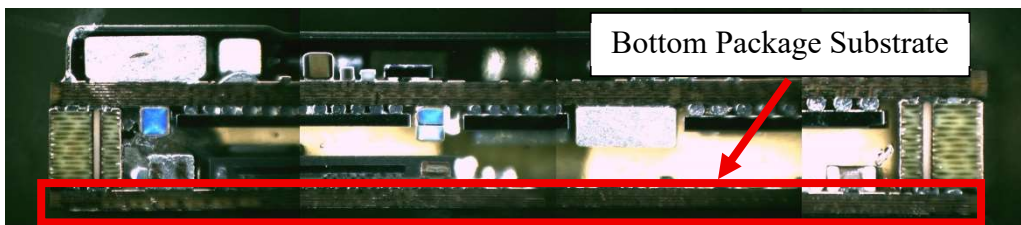
¹¹ See iFixit, *iPhone 11 Teardown*, available at <https://www.ifixit.com/Teardown/iPhone+11+Teardown/126192> (last visited November 20, 2025).

40. The logic board in the iPhone 11 is an Infringing Semiconductor Structure. On information and belief, all other logic boards in iPhones sold since the release of the iPhone X series are Infringing Semiconductor Structures.

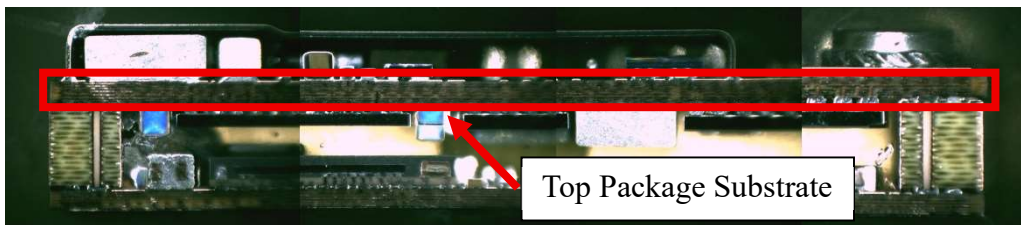
41. A cross-sectioned, microscope view of the logic board in the iPhone 11 shows that the logic board is a structure.



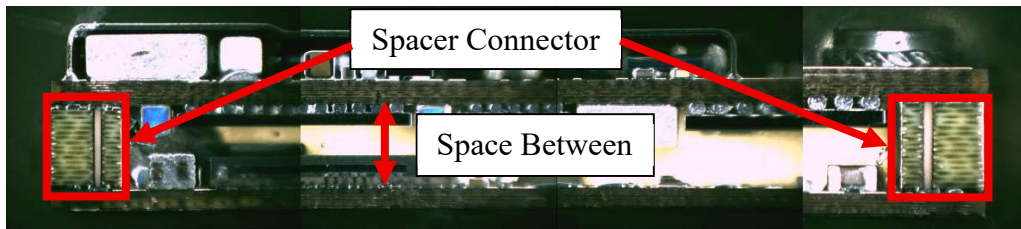
42. The logic board includes a bottom package substrate.



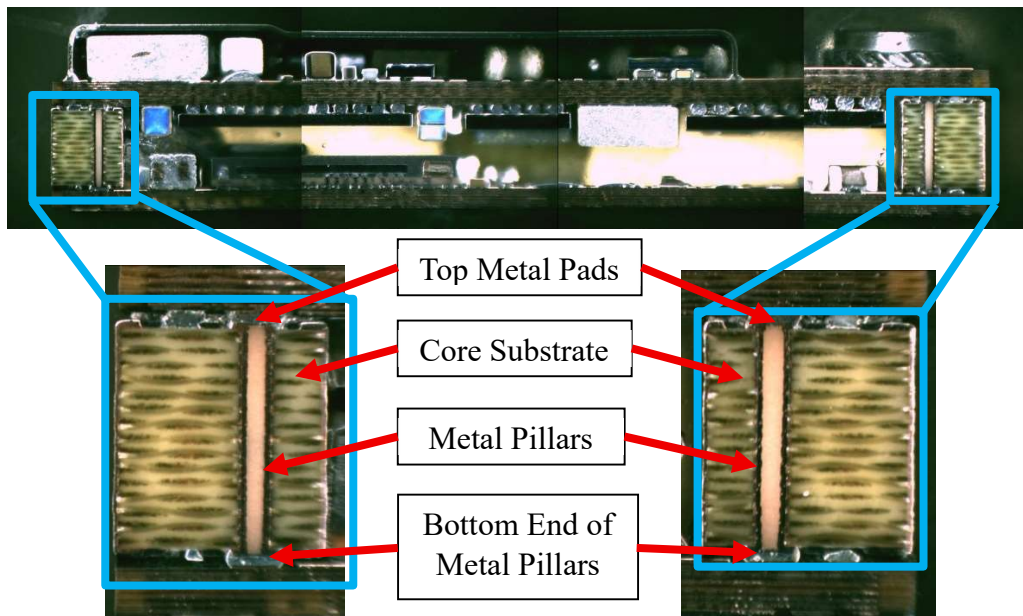
43. The logic board includes a top package substrate stacked on top of the bottom package substrate.

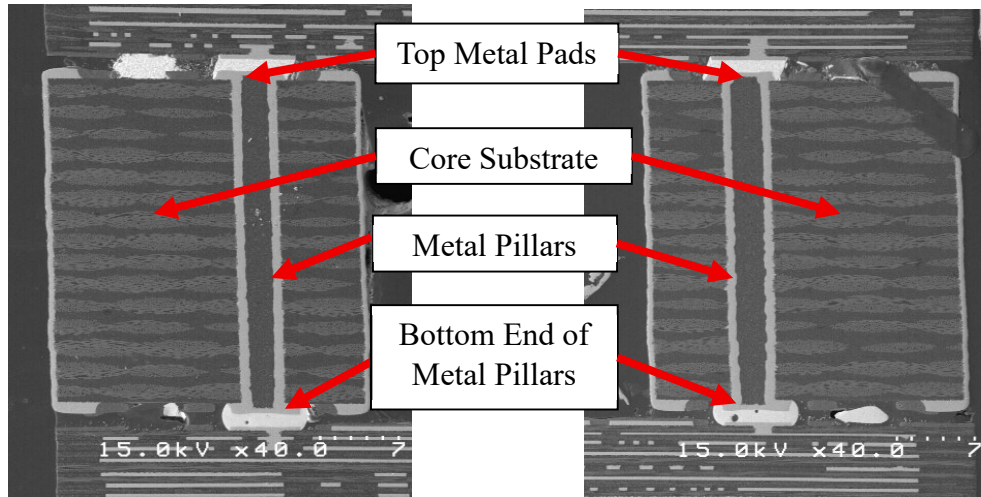


44. The logic board includes at least one spacer connector interposed between the bottom package substrate and the top package substrate to define a space between the bottom package substrate and the top package substrate.

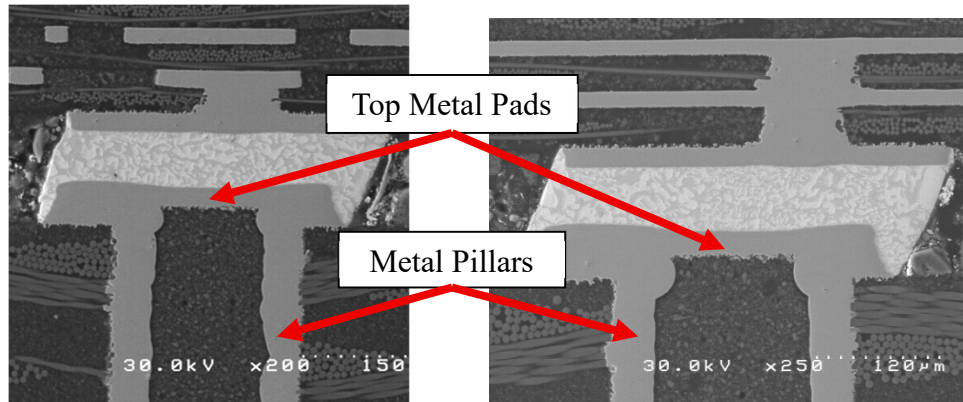


45. The spacer connector in the logic board includes a core substrate, a plurality of metal (e.g., copper) pillars, each passing through the core substrate, and a plurality of top metal (e.g., copper) pads, each on a top end of a corresponding metal pillar among the plurality of metal pillars. A bottom end of each metal pillar among the plurality of metal pillars protrudes downwardly from a bottom surface of the core substrate.

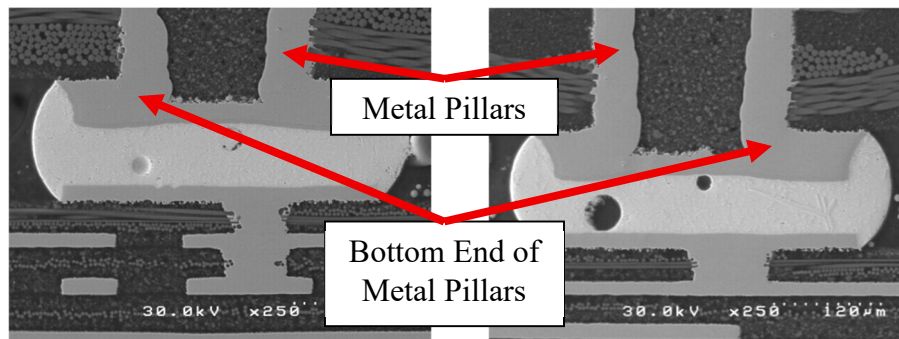




Scanning electron microscope images (“SEM”) of the spacer connectors

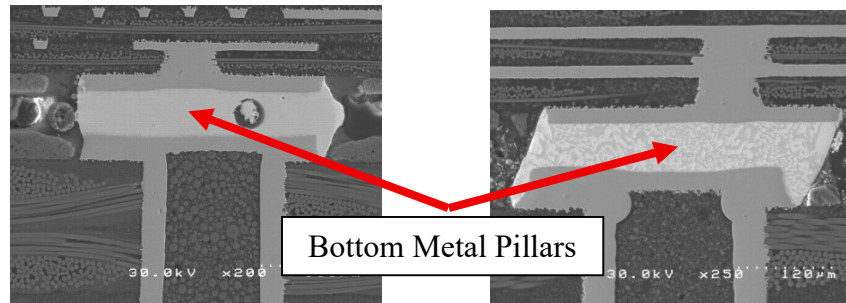


SEM images of the top metal pads and the metal pillars



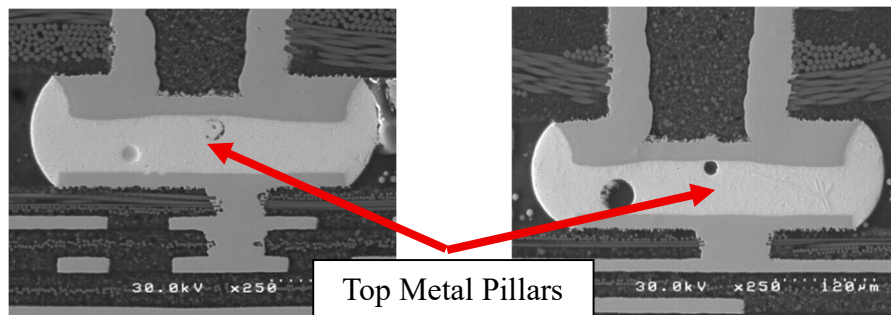
SEM images of the metal pillars and the bottom ends of the metal pillars

46. The top package substrate has, on a bottom surface thereof, a plurality of bottom metal (e.g., tin) pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector.



SEM images of the bottom metal pillars

47. The bottom package substrate has, on a top surface thereof, a plurality of top metal (e.g., tin) pillars each coupled to a corresponding metal pillar among the plurality of metal pillars of the spacer connector.



SEM images of the top metal pillars

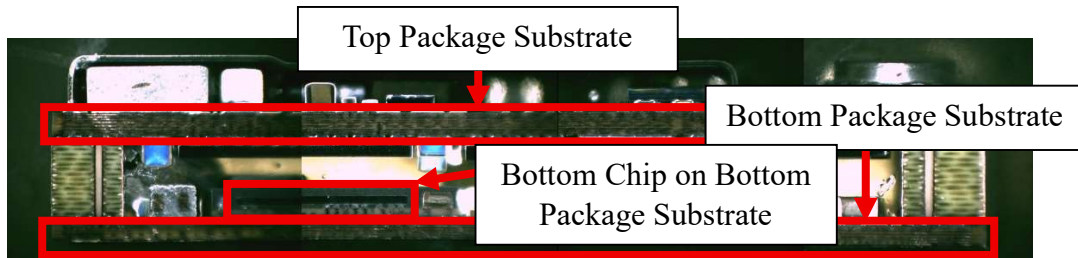
48. The top package substrate is electrically coupled to the bottom package substrate through the plurality of bottom metal pillars of the top package substrate, the plurality of metal pillars of the spacer connector, and the plurality of top metal pillars of the bottom package substrate. For example, electrical signals flow between the top package substrate and the bottom package substrate via the plurality of bottom metal pillars, the plurality of metal pillars, and the

plurality of top metal pillars. The electrical signals are in turn routed to different integrated circuits interfacing with the top package substrate and the bottom package substrate.

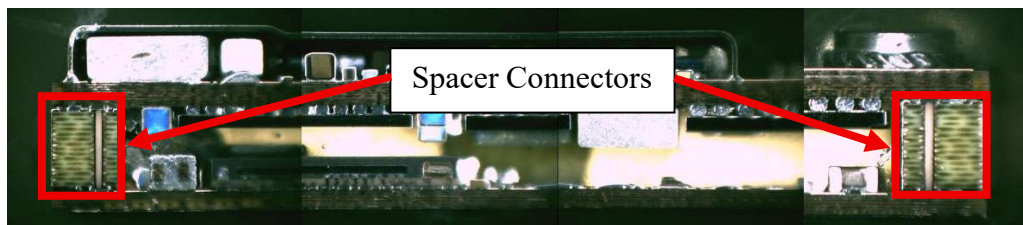
49. A bottom chip is arranged in the space between the bottom package substrate and the top package substrate.



50. The bottom chip is mounted to the top surface of the bottom package substrate. In other words, the bottom chip is sandwiched between the top package substrate and the bottom package substrate.



51. The spacer connector in the logic board includes two spacer connectors arranged on opposite sides of the bottom chip. The two spacer connectors define a cavity in between the top package substrate and the bottom package substrate.



52. Apple has indirectly infringed and continues to indirectly infringe the '202 Patent because it has induced third parties, including customers, suppliers, end users, distributors, and/or

retailers, to have made, use, offer for sale, sell, and/or import the Accused Products without TopWire's permission in violation of 35 U.S.C. § 271(b).

53. Based on information and belief, third parties, including customers, subsidiaries and wholly- or partially-owned companies, end users, distributors, and/or retailers, have directly infringed the '202 Patent by having made, using, offering for sale, selling, and/or importing the Accused Products, including, for example, by manufacturing, configuring, using, selling, and operating the Accused Products.

54. Apple induced these third parties' direct infringement by advertising, encouraging, instructing, providing support for, and/or operating the Accused Products for or on behalf of such third parties. For example, on information and belief, Apple induces retailers to import, market, offer to sell, and sell the Accused Products within the United States. Also, Apple publishes specifications, datasheets, instruction manuals, support materials, developer materials, marketing materials, and user guide materials that explain, advertise, instruct on, or provide support for the Accused Products.

55. Apple took the above actions intending to cause infringing acts by these third parties.

56. If Apple did not know that the actions it encouraged constituted infringement of the '202 Patent, Apple was willfully blind as to its inducing infringement of others. Apple subjectively believed that there was a high probability that others would infringe the '202 Patent.

57. Apple's infringement has also been and continues to be willful and deliberate. On information and belief, Apple deliberately infringed the Asserted Patent and acted recklessly and in disregard of the Asserted Patent by making, having made, using, importing, and offering for sale products that infringe the Asserted Patent. On information and belief, the risks of infringement

were known to Apple and/or were so obvious under the circumstances that the infringement risks should have been known. On information and belief, Apple has no reasonable non-infringement theories. On information and belief, Apple has not attempted any design/sourcing change to avoid infringement. Apple has acted despite an objectively high likelihood that its actions constituted infringement of the Asserted Patent. In addition, this objectively-defined risk was known or should have been known to Apple. On information and belief, Apple has willfully infringed and/or continues to willfully infringe the Asserted Patent. Apple exhibited egregious behavior beyond typical infringement in that, despite being aware of its infringement, Apple did not develop any non-infringement theories, did not attempt any design or sourcing change, and did not otherwise cease its infringement.

JURY DEMAND

58. TopWire hereby demands a trial by jury on all issues.

PRAYER

Wherefore, TopWire prays for entry of judgment as follows:

59. A judgment in favor of TopWire that Apple has infringed, directly and/or indirectly, and is infringing, either literally and/or under the doctrine of equivalents, the Asserted Patent;

60. A judgment in favor of TopWire that Apple's infringement has been and continues to be willful; in the alternative, a judgment in favor of TopWire that Apple's infringement is willful and continues to be willful as of the date of this Complaint;

61. An award of damages in favor of TopWire adequate to compensate TopWire for Apple's infringement of the Asserted Patent which shall in no event be less than a reasonable royalty, together with interest and costs as fixed by the court pursuant to 35 U.S.C. § 284;

62. A permanent injunction in favor of TopWire against Apple enjoining Apple, its officers, agents, employees, and others acting in privity, from further infringement of the Asserted Patent;

63. An award of an ongoing royalty for Apple's post-judgment infringement in the event a permanent injunction is not granted;

64. An award of attorneys' fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by law in an amount deemed just and appropriate by the Court;

65. An award of costs and expenses as deemed appropriate by the Court; and
Any other legal or equitable relief to which TopWire is justly entitled.

Dated: December 1, 2025

Respectfully submitted,

/s/ Warren J. McCarty, III

Warren J. McCarty, III

State Bar No.: 24107857

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Attorneys for Plaintiff

TopWire LLC

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on December 1, 2025, all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system.

/s/ Warren J. McCarty III
Warren J. McCarty III